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Brocade ServerIron ADX

Software Licensing Guide

Supporting Brocade ServerIron ADX version 12.5.02

BROCADE

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Preface

Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Brocade technical documentation.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier may be used in the flow of the text to highlight specific words or phrases.

Format	Description
bold text	Identifies command names
	Identifies keywords
	Identifies the names of user-manipulated GUI elements
	Identifies text to enter at the GUI or CLI
italic text	Provides emphasis
	Identifies variables and modifiers
	Identifies paths and Internet addresses
	Identifies document titles
`Courier font`	Identifies CLI output
	Identifies command syntax examples

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ x | y |z }	A choice of required parameters is enclosed in curly braces separated byvertical bars. You must select one of the options.
x | y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element. For example, **member** [**member...**].
\	Indicates a “soft” line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Notes, cautions, and warnings

The following notices and statements may be used in this document. They are listed below in order of increasing severity of potential hazards.

NOTE
A note provides a tip, guidance or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

CAUTION

A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER

A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Brocade resources

Visit the Brocade website to locate related documentation for your product and additional Brocade resources.

You can download additional publications supporting your product at www.brocade.com. Select the Brocade Products tab to locate your product, then click the Brocade product name or image to open the individual product page. The user manuals are available in the resources module at the bottom of the page under the Documentation category.

To get up-to-the-minute information on Brocade products and resources, go to MyBrocade. You can register at no cost to obtain a user ID and password.

Release notes are available on MyBrocade under Product Downloads.

White papers, online demonstrations, and data sheets are available through the Brocade website.

Select **Application Delivery Switches** on this page to navigate to the relevant product information.

Contacting Brocade Technical Support

As a Brocade customer, you can contact Brocade Technical Support 24x7 online, by telephone, or by e-mail. Brocade OEM customers contact their OEM/Solutions provider.

Brocade customers

For product support information and the latest information on contacting the Technical Assistance Center, go to *http://www.brocade.com/services-support/index.html*

If you have purchased Brocade product support directly from Brocade, use one of the following methods to contact the Brocade Technical Assistance Center 24x7.

Online	Telephone	Email
Preferred method of contact for non-urgent issues: • My Cases through MyBrocade • Software downloads & licensing tools • Knowledge Base	Required for Sev 1-Critical and Sev 2-High issues: • Continental US: 1-800-752-8061 • Europe, Middle East, Africa, and Asia Pacific: +800-AT FIBREE (+800 28 34 27 33) • For areas unable to access toll free number: +1-408-333-6061 • *Toll-free numbers* are available in many countries.	*support@brocade.com* Please include: • Problem summary • Serial number • Installation details • Environment description

Brocade OEM customers

If you have purchased Brocade product support from a Brocade OEM/Solution Provider, contact your OEM/Solution Provider for all of your product support needs.

- OEM/Solution Providers are trained and certified by Brocade to support Brocade® products.
- Brocade provides backline support for issues that cannot be resolved by the OEM/Solution Provider.
- Brocade Supplemental Support augments your existing OEM support contract, providing direct access to Brocade expertise. For more information, contact Brocade or your OEM.
- For questions regarding service levels and response times, contact your OEM/Solution Provider.

Document feedback

To send feedback and report errors in the documentation you can use the feedback form posted with the document or you can e-mail the documentation team.

Quality is our first concern at Brocade and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. You can provide feedback in two ways:

- Through the online feedback form in the HTML documents posted on *http://www.brocade.com*.
- By sending your feedback to *documentation@brocade.com*

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Chapter

1 Software Licensing Overview

Using software licenses

With the dynamic growth of anytime, anywhere client access to application delivery networks, it is frequently challanging to precisely anticipate future capacity requirements. Brocade Product Name (ADX) devices alleviate capacity planning complexity with pay-as-you-grow solutions. You can begin your deployments with the capacity you need and then unlock higher capacity when it's needed, without removing devices from service.

Software licensing provides scalability and rapid deployment of hardware and software features for Brocade ADX devices. Typically, a perpetual license is ordered and pre-installed on a Brocade ADX device when first shipped from the factory. Depending on the device model and license selected, a specific number of application cores, interface ports, hardware acceleration and software capabilities are enabled. Upgrade licenses, that quickly unlock remaining untapped device capacity, can then be ordered as needed.

License types

Brocade and its suppliers grant to you a limited, non-exclusive, non-transferable, non-assignable, license to use the licensed features, either software or hardware or both, solely for internal purposes and solely for the purposes set forth in the Product documentation. The license(s) obtained by you through execution of License Agreement(s) are subject to the NSO policies located at www.brocade.com and may include additional limitations. For additional information, please reference your quote and invoice as well as www.brocade.com.

The following license types are supported on Brocade ADX devices:

- **Trial license** – a trial license enables demonstration and evaluation of a licensed feature. A trial license is typically valid for a limited period such as 45 days. For more information about a trial license, see "Using a trial license" on page 11.
- **Perpetual license** – a perpetual (non-expiring) license applies to a single Brocade ADX device. It does not require renewal and remains active for the life of the product. Support and software upgrades are not included with a perpetual license, but can be obtained by paying an annual support fee.

Software license terminology

This section defines the key terms used in this chapter.

- **Entitlement certificate** – The proof-of-purchase certificate (*paper-pack* or *electronic*) issued by Brocade when a license is purchased. The certificate contains a unique *transaction key* that is used in conjunction with the *License ID* of the Brocade device to generate and download a software license from the Brocade software portal.

- **License file** – The file produced by the Brocade software portal when the license is generated. The file is uploaded to the Brocade device and controls access to a *licensed feature* or feature set.
- **License ID (LID)** – This is a number that uniquely identifies the Brocade device. The LID is used in conjunction with a *transaction key* to generate and download a software license from the Brocade software portal. The software license is tied to the LID of the Brocade device for which the license was ordered and generated.
- **Licensed feature** – Any hardware or software feature or set of features that require a valid software license in order to operate on the device.
- **Transaction key** – This unique key, along with the *LID*, is used to generate a software license from the Brocade software portal. The transaction key is issued by Brocade when a license is purchased. The transaction key is delivered according to the method specified when the order is placed:
  - **Paper-pack** – The transaction key is recorded on an *entitlement certificate,* which is mailed to the customer.
  - **Electronic** – The transaction key is contained in an e-mail, which is instantly sent to the customer after the order is placed. The customer will receive the e-mail generally within a few minutes after the order is placed, though the timing will vary depending on the network, internet connection, etc.

  If a delivery method was not specified at the time of the order, the key will be delivered via paper-pack.

Licensing rules

This section lists the software licensing rules for both the fixed form appliance, ADX 1000 series, and the modular chassis systems, the ADX 4000 and the ADX 10000 series.

General notes

The following rules apply to all Brocade ADX devices that support software licensing:

- A license is tied to the unique LID of the management module or fixed configuration device for which the license was ordered. Therefore, a license can be used on one particular device only. It cannot be used on any other device. You can use the ASM4 or ASM8 license in another chassis since these licenses are tied to the module and not the chassis device.
- More than one license can be installed per device.
- More than one trial license can be in effect at the same time, as long as each trial license applies to a unique licensed feature.

Obtaining a license

The Brocade ServerIron ADX Application Delivery Switches come in two categories, the fixed form appliance and the modular chassis system. The Brocade ADX 1000 Series is part of the first category of appliance system, while the Brocade ADX 4000 Series and the 10000 Series are part of the modular chassis system. These systems respectively can be upgraded on-demand to match the changing customer needs, by selecting from the collection of software licenses and/or modular hardware options. For further information, refer to Appendix A, "Licensed features and part numbers".

Identifying the correct license for a desired feature

To help you determine how to best meet your current and anticipated future requirements, the licensed features for the different Brocade ADX series are described below. The fixed form appliance and the modular chassis systems are discussed separately. The latter systems offer more flexibility and higher performance levels than the fixed form series.

Brocade ADX 1000 Series (fixed form appliance)

The Brocade ADX 1000 Series of Application Delivery Switches come in standard configuration that includes the basic application delivery controller (ADC) features. In addition, you have the ability to add more advanced features, performance, and ports by upgrading them through a corresponding software license.

Application Processor – The Brocade ADX 1000 series application switch is equipped with 4 application processors. The minimum configuration enables 1 application processor and configurations are available that enable 1, 2 or 4 application processors. Systems with 1 or 2 application processors can be upgraded to enable 2 or 4.

1 Gbps copper ports –The Brocade ADX 1000 series application switch is equipped with sixteen 1 Gbps copper ports. The minimum configuration enables 8 of these ports. A system with an 8 port license can be upgraded to support 16 ports.

Hardware-based SSL offload – The Brocade ADX 1000 series application switch is equipped with an embedded SSL hardware module. You can enable this module only with a license.

10 Gbps ports – The Brocade ADX 1000 series application switch is equipped with two 10 Gbps ports. You can upgrade a system to enable 2 ports.

Premium software – Configurations are available that enable Layer-3 and Global Load Balancing features for the Brocade ADX router image.

Multitenancy - When configured with a PREM license, Brocade ADX 1000 series application switches support multitenancy for up to four tenants.

Brocade ADX 4000 and 10000 Series (modular chassis systems)

The Brocade ADX 4000 and 10000 Series of Application Delivery Switches come in standard configuration that includes the basic application delivery controller (ADC) features. You have the ability to add more performance, advanced features, and ports by adding the respective hardware module and software license.

Premium software – Enables Layer-3 and Global Load Balancing features for the Brocade ADX router image.

Multitenancy - When configured with a PREM license, Brocade ADX 4000 and 10000 series application switches support multitenancy for up to four tenants. You can upgrade a system to support up to 16 tenants. Brocade ADX 10000 series switches can be further upgraded to support up to 32 tenants.

Brocade ADX ASM4 Bundle - A special bundle that includes the following features:

Application Processor – configured with one Application Switch module with four of the available eight Application Processors enabled. This module is designated as an ASM4. An upgrade license is available to enable all eight Application Processors. When this license is installed, the module is recognised as an ASM8.

12 x 1 GF Interface Module – A 12 x 1 GF Interface Module equipped with 8 Copper SFPs is included in the Brocade ADX ASM4 Bundle.

Management Module – A single Management module is included in the Brocade ADX ASM4 Bundle.

Power Supplies – Two AC Power Supplies are included in the Brocade ADX ASM4 Bundle.

Premium software – The Premium software license that enables Layer-3 and Global Load Balancing features for the Brocade ADX router image is included in the Brocade ADX ASM4 Bundle.

NOTE
When an ADX-CH-LIC-ASM4-8 license, that upgrades the ASM4 to an ASM8, is installed, the **show** command shows both the SI-ASM4-P12-B and ADX-CH-LIC-ASM4-8 licenses as active. The equivalent license is referred to as the ASM8 in this document for simplicity. The ADX-CH-LIC-ASM4-8 license is not available as a trial license.

Ordering a license

When a license is ordered separately i.e. not pre-installed on a device when first shipped from the factory, a license activation paper-pack or an e-mail message with a *transaction key* and a link to the Brocade software portal, is issued to the customer by Brocade as proof of purchase. The *transaction key* and the Brocade device *LID* (obtained from the external label or as output from the **show version** CLI command) are used to generate a license key from the Brocade software portal. The license key is contained within a *license file*, which is downloaded to the customer's PC, where the file can then be transferred to a TFTP or SCP server, then uploaded to the Brocade device.

Once a license is installed on the Brocade device a reload is required for the new functions to be enabled on the device.

Access Brocade software portal

The procedures in this section show how to generate and obtain a software license.

1. Order a license for the desired licensed feature. For a list of valid part numbers and licensed features, refer to Appendix A, "Licensed features and part numbers".

NOTE
To order and obtain a *trial license*, contact your local Brocade sales representative.

2. When you receive the paper-pack or electronic transaction key, retrieve the LID of your Brocade device by entering the **show version** command on the device. Example command output is shown in "Viewing the License ID (LID)" on page 12."

   If you received a paper-pack transaction key, write the LID in the space provided on the entitlement certificate for your records.

NOTE
Do not discard the entitlement certificate or e-mail with electronic key. Keep it in a safe place in case it is needed for technical support or product replacement (RMAs).

3. Log in to the Brocade software portal at http://swportal.brocade.com.

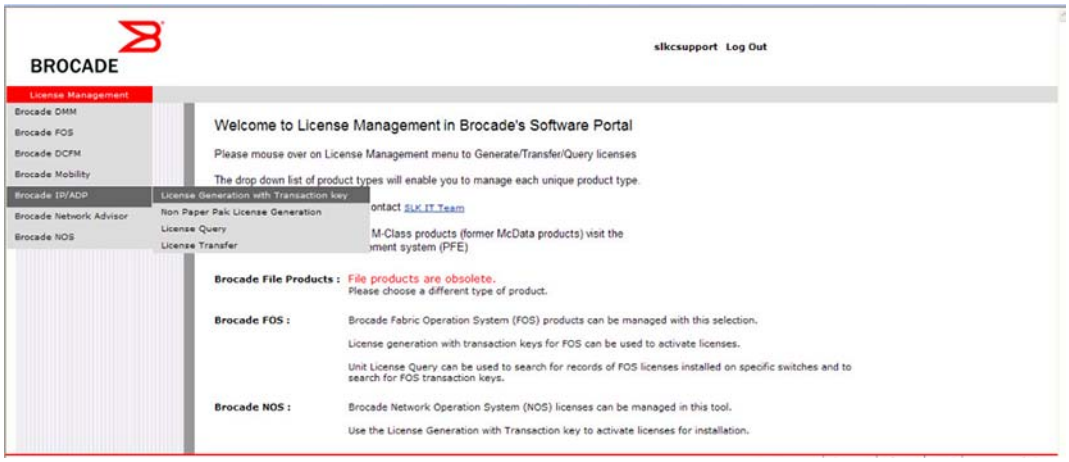
NOTE
If you do not have a login ID and password, complete the self registration process before proceeding to log into the portal.

FIGURE 1 Brocade Software Portal Login window

International
search
BROCADE
Products
Solutions & Technology
Services & Support
Education
Partnerships
Company
Log In
User ID:
Password:
Take me to:
Software Licensing
LOG IN »
Register with Brocade
Register your Brocade products and gain access to MyBrocade, Brocade Communities and Brocade Training.
REGISTER NOW »
Unlock powerful online tools such as Support Cases and Knowledge Base when you purchase a Brocade Technical Support plan.
LEARN MORE »
RSS Feeds | Contact Us | Site Map | Privacy | Legal | Careers | Investor Relations

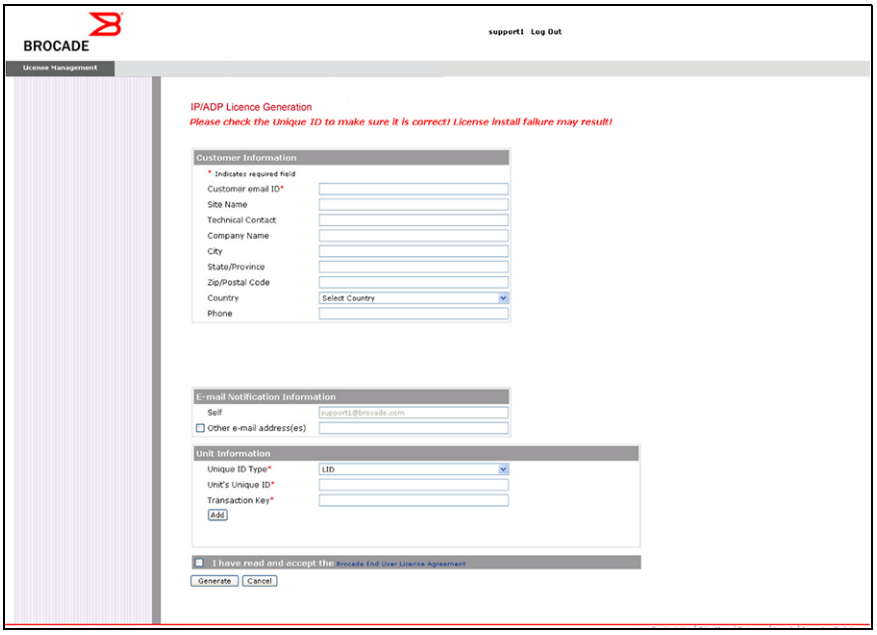
4. From the **License Management** menu, select **Brocade IP/ADP** > **License Generation with Transaction key.**

FIGURE 2 License Management Welcome window


BROCADE
slkcsupport Log Out
License Management
Brocade DMM
Brocade FOS
Brocade DCFM
Brocade Mobility
Brocade IP/ADP
Brocade Network Advisor
Brocade NOS
License Generation with Transaction key
Non Paper Pak License Generation
License Query
License Transfer
Welcome to License Management in Brocade's Software Portal
Please mouse over on License Management menu to Generate/Transfer/Query licenses
The drop down list of product types will enable you to manage each unique product type.
Brocade File Products : File products are obsolete.
Please choose a different type of product.
Brocade FOS :
Brocade Fabric Operation System (FOS) products can be managed with this selection.
License generation with transaction keys for FOS can be used to activate licenses.
Unit License Query can be used to search for records of FOS licenses installed on specific switches and to search for FOS transaction keys.
Brocade NOS :
Brocade Network Operation System (NOS) licenses can be managed in this tool.
Use the License Generation with Transaction key to activate licenses for installation.

The **IP/ADP License Generation** dialog box shown below displays. This dialog box enables you to generate a license using a **Transaction key**, **Unique ID Type** (LID or unit SN) and the **Unit's Unique ID**.

FIGURE 3 IP/ADP License Generation window



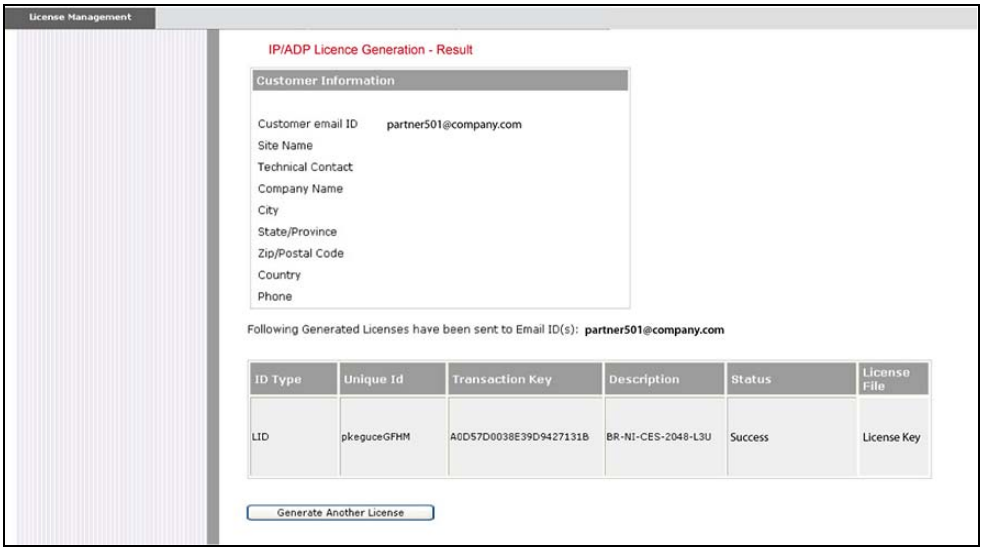
5. Enter the required information.
   - For a description of the field, move the pointer over the field.
   - An asterisk next to a field indicates that the information is required.

NOTE
You can generate multiple licenses at a time. For each license request, enter the **Transaction Key, Unique ID Type** (LID or unit SN) and the **Unit's Unique ID**, and click **Add**.

6. When you have finished entering the required information, read the Brocade End User License Agreement, and select the **I have read and accept** check box.

7. Click the **Generate** button to generate the license. The **IP/ADP License Generation Results window** shown below displays an order summary and the results of the license request.
   - If the license request was successful, the **Status** field shows "Success" and the **License File** field contains a hyperlink to the generated license file. The license file is automatically sent by e-mail to the specified customer e-mail address.
   - If the license request fails, the **Status** field indicates the reason it failed and the action to be taken.

FIGURE 4 IP/ADP License Generation Results window



8. Download the license file to your PC by either clicking the hyperlink in the **License File** field, or saving the license file from the e-mail attachment.
9. Upload the license file to the Brocade device as instructed in "Installing a license file" on page 9.

Viewing licenses installed on a device

You can use the **License Query** option from the Brocade software portal to view software license information for a particular unit, transaction key or both. You can export the report to Excel for sharing or archiving purposes.

Depending on the status of the license, for example whether or not the license was generated, the report will include the following Information:

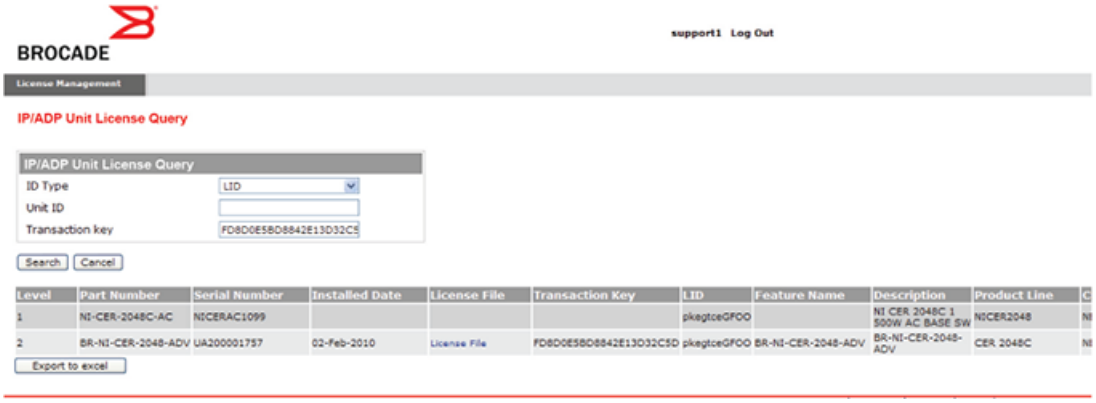
- Hardware part number, serial number, and description
- Software part number, serial number, and description
- Date the license was installed
- Transaction key
- LID
- Feature name
- Product line

From the **License Management** menu, select **Brocade IP/ADP** > **License Query.**

FIGURE 5 License Query window

- To view software license information for a particular unit, enter the **ID Type** (LID or unit SN) and the **Unit ID** information and click **Search**.
- To view software license information for a particular transaction key, enter the unique number in the **Transaction key** field and click **Search**.

FIGURE 6 License Query results window



In this example, the line items for Level 1 display hardware-related information and the line items for Level 2 display software-related information. If the query was performed before the transaction key was generated, the first row (Level 1) would not appear as part of the search results. Similarly, if the query was performed before the license was generated, some of the information in the second row would not be displayed.

NOTE

For information about managing software licenses using the ADX web interface, refer to the *ServerIron ADX Graphical User Interface Guide.* For information about managing software licenses using XML APIs, refer to the *ServerIron ADX XML API Programmer's Guide.*

Chapter

2

Software Licensing Tasks

Configuration tasks

This section describes the configuration tasks for generating and obtaining a software license, then installing it on the Brocade device. Perform the tasks in the order listed in the following table.

TABLE 1 **Configuration tasks for software licensing**

Configuration task		See...
1	Order the desired license.	For a list of available licenses and associated part numbers, see Appendix A, "Licensed features and part numbers".
2	When you receive the transaction key, retrieve the LID of the Brocade device. If you received the transaction key by way of paper-pack, record the LID on the entitlement certificate in the space provided for your records.	"Viewing the License ID (LID)" on page 12
3	Log in to the Brocade software portal to generate and obtain the license file.	"Obtaining a license" on page 3
4	Upload the license file to the Brocade device.	"Installing a license file" on page 9
5	Verify that the license is installed.	"Verifying the license file installation" on page 10
6	For Premium upgrades, upload the Layer-3 routing software image to the device.	Refer to the release notes

Installing a license file

Once you obtain a license file, you can do one of the following:

- Copy the license file to a TFTP server to which the Brocade device has access and then use TFTP to copy the file to the license database of the ServerIron ADX device.
- Copy the license file to the ServerIron ADX internal flash memory and then add the license to the ServerIron ADX license database.

Using TFTP to install a license file

To copy a license file from a TFTP server to the license database of the ServerIron ADX device, enter a command such as the following at the Privileged EXEC level of the CLI:

```
ServerIronADX#copy tftp license 10.1.1.1 lic.xml
```

Syntax: copy tftp license *IP_address license_filename_on_host*

The *IP_address* variable is the address of the IPv4 TFTP server.

The *license_filename_on_host* variable is the filename of the license file.

Using the ServerIron ADX flash file system to install a license

To copy a license file to the flash file system of the ServerIron ADX device, for loading to the license database, you must first copy the file to a TFTP server. To perform this copy operation, enter a command such as the following at the Privileged EXEC level of the CLI:

```
ServerIronADX# copy tftp usb0 10.1.1.1 ADX-1016-2-LIC-4P.xml tmp
```

Syntax: copy tftp usb0 *IP_address license_filename_on_host filename_on_usb0*

The *IP_address* variable is the address of the IPv4 TFTP server.

The *license_filename_on_host* variable is the filename of the license file.

The *license_filename_on_usb0* variable is the filename to be created on usb0.

To copy a license file from flash memory to the license database of the ServerIron ADX device, enter a command such as the following.

```
ServerIronADX# license add usb0/tmp
```

Syntax: license add usb0/*filename_on_usb0*

Verifying the license file installation

Use the **show license** command to verify that the license is installed on the device. Details about this command are in the section "Viewing the license database" on page 13.

Deleting a license

A license will remain in the license database until it is deleted. To delete a license, enter a command such as the following at the Privileged EXEC level of the CLI:

```
ServerIronADX# license delete 7
```

NOTE
When you delete a license, only features, performance or ports enabled by upgrade licenses are impacted or deleted. You cannot delete the standard configuration.

This command immediately removes the license from the license database. The licensed feature will continue to run as configured until the software is reloaded, at which time the feature will be disabled and removed from the system. Syslog messages are generated when the license is deleted.

Syntax: license delete *index_number*

The *index_number* variable is a valid license index number. This information can be retrieved from the **show license** command output. For more information, refer to "Viewing information about software licenses" on page 12.

Using a trial license

NOTE
A trial license must be ordered from and installed by a Brocade representative only.

A trial license enables demonstration and evaluation of a licensed feature. The trial license is valid for a period of up to 45 days, and is renewable for an additional 45 days if required. A licensed feature operating under a trial license has the same functionality (CLI and **show** commands) as it does when operating under a normal license.

What happens when a trial license expires

A trial license will expire when it exceeds the specified expiration time or date. The countdown starts when the trial license is generated. When the license expires, the CLI commands related to the licensed feature will no longer be available from the CLI. The licensed feature will continue to run as configured until the software is reloaded, at which time the feature will be disabled and removed from the system.

NOTE
Trial licenses are not cumulative. The new license replaces the current license. To extend the license, you must contact your Brocade representative.

Console, and Syslog messages for trial license expiration

Three days prior to the date that a trial license is set to expire and each day until the last day, the following warning message will appear daily on the console. On the day that the license will expire, the warning message will appear every two hours. Syslog messages will also be generated.

```
SYSLOG: <12>Jan  1 00:00:00 License: Package ADX-1008-1-TRL-2PPLS with LID
GHIJWYDZNN expires in 3 days
```

When the license has expired, the following message will appear on the console. Syslog messages will also be generated.

```
SYSLOG: <13>Jan  1 00:00:00 License: Package ADX-1008-1-TRL-2PPLS with LID
GHIJWYDZNN has expired, use license delete to remove it.
```

Renewing or extending a trial license

A trial license can be extended, once by another trial license of the same type, or by a normal license of the same type. To avoid any interruptions to the network, obtain and install the second trial license before the first license expires. When extended by another trial license, the duration is not cumulative. The countdown starts when the trial license is generated.

To extend the license, you must contact your Brocade representative.

Syslog messages information

The following Syslog messages are supported for software-based licensing.

TABLE 2 Syslog messages

Message level	Message	Explanation
Informational	License: Package *package_name* with LID *LID_number* is added	Indicates that the license package has been added.
Informational	License: Package *package_name* with LID *LID_number* is removed	Indicates that the license package has been deleted.
Warning	License: Package *package_name* with LID *LID_number* expires in *number* days	The trial license is about to expire. This message will begin to display 3 days before the expiration date, and every 2 hours on the last day that the license will expire.
Notification	License: Package *package_name* with LID *LID_number* has expired	The trial license has expired.

Viewing information about software licenses

This section describes the **show** commands associated with software licensing. These commands are issued on the Brocade device, at any level of the CLI.

Viewing the License ID (LID)

Brocade devices that ship during and after the release of software licensing will have the LID imprinted on the label affixed to the device. You also can use the CLI command **show version** to view the LID on these devices. Use the **show version** command to display the serial number, license, and LID of the device. This display differs for ServerIron ADX fixed configuration devices and ServerIron ADX chassis devices.

The following is an example output from a ServerIron ADX fixed configuration device (ServerIron ADX 1000) with the license SI-1216-4-SSL installed.

```
ServerIronADX#show version
Copyright (c) 1996-2009 Brocade Communications Systems, Inc.
Boot Version 12.1.00T405 Oct 29 2009 10:12:19 PST label: dob12100
Monitor Version 12.1.00T405 Oct 29 2009 10:12:19 PST label: dob12100
System Version 12.0.00dT401 Mar 31 2010 10:59:57 PST label: ASM12000dev
AXP Version: 1.13 Dated: 2010/02/09 07:35:49
PAX Version: 0.0 Dated: 2009/07/28 10:35:11
MBRIDGE Version: 000b, Device ID #bebe
================================================================================
Type:   ServerIronADX 1216-4
      Backplane Serial #:   SA98045987
      Chassis Serial #:   1234rtyu88
      LID #: GHIJWYDZNN  License: SI-1216-4-SSL
      Part #:   84-1000811-01
      Version #: 13b626-03030303-111d8036-00
================================================================================
```

For ServerIron ADX chassis devices, a separate license is displayed for the chassis and the ASM module. The following example displays the "**LID #**" for the chassis and the "**ASM-LID#**" for the ASM module.

```
ServerIronADX4000#show version
Copyright (c) 1996-2009 Brocade Communications Systems, Inc.
Boot Version 12.1.00aT405 Jul  9 2010 19:03:54 PDT label: dob12100a
Monitor Version 12.1.00aT405 Jul  9 2010 19:03:54 PDT label: dob12100a
System Version 12.3.01T401 May 26 2011 15:47:58 PDT label: ASM12301
AXP Version: 1.14 Dated: 2010/08/06 10:35:46
PAX Version: 8.4 Dated: 2010/10/06 14:31:02
MBRIDGE Version: 000b, Device ID #bebe

================================================================================
Type:   ServerIron ADX 1216-4-PREM
      Backplane Serial #:   E20548F4EH
      Chassis Serial #:   E30549F00F
      LID #: gIFKJOhFFh  License: SI-1216-4-SSL-PREM
      Part #:   35723-001
      SSL Card - Serial #: 1F0548F08W       Part #: 40-1000373-02
      Version #: 13b626-03030303-111d8036-00
================================================================================
Active management module:
       1499 MHz Power PC processor (SVR 1.1, PVR 8021/0030) 599 MHz bus
        512 KB Boot flash
      131072 KB Code flash
       2048 MB DRAM
The system uptime is 14 days 4 hours 2 minutes 59 seconds
```

Viewing the license database

To display general information about all software licenses in the license database, use the **show license** command. The following shows example output.

```
ServerIronADX#show license
Index   Package Name          Lid           Type      Status      Period
1       SI-1008-1             GHIJWYDZNN    Normal    Active      Unlimited
2      ADX-1008-1-LIC-2PPLS   GHIJWYDZNN    Normal    Active      Unlimited
3      ADX-1016-2-LIC-4P      GHIJWYDZNN    Normal    Active      Unlimited
4      ADX-1016-4-LIC-10G     GHIJWYDZNN    Normal    Active      Unlimited
```

To display information about Application Switch Module (ASM) licenses, use the **show license asm** command. The following shows example output.

```
Chassis with only one ASM4 on the box in slot 1:
ServerIronADX#show license asm
Slot 1:
--------------------------------------------------------------------------------
Index  Package           LID         License    Status       License
       Name                         Type                    Period
-------------------------------------------------------------------
1      SI-ASM4           uCOjkwenb   normal     active       unlimited
--------------------------------------------------------------------------------

Output after upgrading to an ASM8 in slot 1:

ServerIronADX#show license asm
Slot 1:
--------------------------------------------------------------------------------
Index  Package            LID          License    Status       License
       Name                            Type                    Period
--------------------------------------------------------------------------------
1      SI-ASM4            uCOjkwenb    normal     active       unlimited
2      ADX-CH-LIC-ASM4-8  uCOjkwenb    normal     active       unlimited
--------------------------------------------------------------------------------
```

To display detailed information about a particular license, use the **show license** *index_number* command. The following shows example output.

```
ServerIronADX#show license 1

License information for license <1>:
       +package name: SI-1008-1
       +lid: GHIJWYDZNN
       +Status: Active
       +license type: Normal
       +license period: Unlimited
```

Syntax: show license [**asm**] [*index_number*]

The following table describes the information displayed by the **show license** command.

TABLE 3 Output from the show license command

This field...	Displays...
Index	The license hash number that uniquely identifies the license.
Package Name	The package name for the license.
LID	The license ID. This number is embedded in the Brocade device.
Status	Indicates the status of the license: • **Invalid** – A license is invalid when the LID doesn't match the serial number of the device for which the license was purchased. • **Active** – The license is valid and in effect on the device. • **Expired** – For trial licenses only, this indicates that the trial license has expired. This field will always display "active" with the **show license asm** command.
Type	Indicates whether the license is normal (perpetual) or trial (temporary). This field will always display "normal" with the **show license asm** command.

TABLE 3 Output from the **show license** command (Continued)

This field...	Displays...
Period	If the license type is trial (temporary), this field will display the number of days the license is valid. If the license type is normal (perpetual), this field will display "unlimited". Because trial licenses are not available for the ASM4 or ASM4 to ASM8 upgrade, this field will always display "unlimited" with the **show license asm** command.
Trial license information The following details display in the output of the **show license** *Index_number* command.	
+ days used	The number of days the trial license has been in effect.
+ hours used	The number of hours the trial license has been in effect.
+ days left	The number of days left before the trial license expires.
+ hours left	The number of hours left before the trial license expires.

NOTE

For information about managing software licenses using the ADX web interface, refer to the *ServerIron ADX Graphical User Interface Guide.* For information about managing software licenses using XML APIs, refer to the *ServerIron ADX XML API Programmer's Guide.*

Appendix

Licensed features and part numbers

A

Standard configurations and upgrade options

This appendix lists available standard configurations and upgrade options for:

- Brocade ADX 1000 series application switches
- Brocade ADX chassis-based application switches

Brocade ADX 1000 series: standard configurations

The following table lists the standard configurations available for Brocade ADX 1000 series application switches by part number number.

TABLE 4 Brocade ADX 1000 series standard configurations

Part number	Enabled features
SI-1008-1	Brocade ADX 1000 switch: • 1 Application Processor • Eight 1 Gbps ports • Supports switch image only
SI-1008-1-DC	Brocade ADX 1000 switch: • 1 Application Processor • Eight 1 Gbps ports • Supports switch image only • DC power
SI-1008-1-PREM	Brocade ADX 1000 switch: • 1 Application Processor • Eight 1 Gbps ports • Supports PREM (L3) license • Supports switch and router images • Supports multitenancy for up to four tenants
SI-1008-1-SSL	Brocade ADX 1000 switch: • 1 Application Processor • Eight 1 Gbps ports • Supports switch image only • Supports SSL hardware acceleration
SI-1008-1-SSL-PREM	Brocade ADX 1000 switch: • 1 Application Processor • Eight 1 Gbps ports • Supports switch and router images • Supports SSL hardware acceleration • Supports PREM (L3) license • Supports multitenancy for up to four tenants

TABLE 4 Brocade ADX 1000 series standard configurations (Continued)

Part number	Enabled features
SI-1016-2	Brocade ADX 1000 switch: • 2 Application Processors • Sixteen 1 Gbps ports • Supports switch image only
SI-1016-2-DC	Brocade ADX 1000 switch: • 2 Application Processor s • Sixteen 1 Gbps ports • Supports switch image only • DC power
SI-1016-2-PREM	Brocade ADX 1000 switch: • 2 Application Processors • Sixteen 1 Gbps ports • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports multitenancy for up to four tenants
SI-1016-2-SSL	Brocade ADX 1000 switch: • 2 Application Processors • Sixteen 1 Gbps ports • Supports switch image only • Supports SSL hardware acceleration
SI-1016-2-SSL-PREM	Brocade ADX 1000 switch: • 2 Application Processors • Sixteen 1 Gbps ports • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports SSL hardware acceleration • Supports multitenancy for up to four tenants
SI-1016-4	Brocade ADX 1000 switch: • 4 Application Processors • Sixteen 1 Gbps ports • Supports switch image only
SI-1016-4-PREM	Brocade ADX 1000 switch: • 4 Application Processors • Sixteen 1 Gbps ports • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports multitenancy for up to four tenants
SI-1016-4-SSL	Brocade ADX 1000 switch: • 4Application Processors • Sixteen 1 Gbps ports • Supports switch image only • Supports SSL hardware acceleration

TABLE 4 Brocade ADX 1000 series standard configurations (Continued)

Part number	Enabled features
SI-1016-4-SSL-PREM	Brocade ADX 1000 switch: • 4 Application Processors • Sixteen 1 Gbps ports • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports SSL hardware acceleration • Supports multitenancy for up to four tenants
SI-1216-4	Brocade ADX 1000 switch: • 4 Application Processors • Sixteen 1 Gbps ports • Supports switch image only • Two 10 Gbps ports
SI-1216-4-PREM	Brocade ADX 1000 switch: • 4 Application Processors • Sixteen 1 Gbps ports • Supports PREM (L3 + GSLB) license • Supports switch and router images • Two 10 Gbps ports • Supports multitenancy for up to four tenants
SI-1216-4-SSL	Brocade ADX 1000 switch: • 4 Application Processors • Sixteen 1 Gbps ports • Supports switch image only • Supports SSL hardware acceleration • Two 10 Gbps ports
SI-1216-4-SSL-PREM	Brocade ADX 1000 switch: • 4 Application Processors • Sixteen 1 Gbps ports • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports SSL hardware acceleration • Two 10 Gbps ports • Supports multitenancy for up to four tenants

Brocade ADX 1000 series: upgrade licenses

The following table lists the upgrade options available by license for Brocade ADX 1000 series application switches. For further information about the upgrade process refer to http://www.brocade.com/downloads/documents/at_a_glance/SI_ADX_12.2_COD_GA-AG-00.pdf.

TABLE 5 Upgrade licenses available for Brocade ADX 1000 series application switches

License	Eligible part number	Equivalent part number after upgrade
ADX-1008-1-LIC-2PPLS (Perpetual License)	SI-1008-1	SI-1016-2
	SI-1008-1-DC	SI-1016-2
ADX-1008-1-TRP-2PPLS (Trial License)	SI-1008-1-PREM	SI-1016-2-PREM
	SI-1008-1-SSL	SI-1016-2-SSL
	SI-1008-1-SSL-PREM	SI-1016-2-SSL-PREM
ADX-1K-LIC-PREM (Perpetual License)	SI-1008-1	SI-1008-1-PREM
	SI-1008-1-DC	SI-1008-1-PREM
ADX-1K-TRL-PREM (Trial License)	SI-1008-1-SSL	SI-1008-1-SSL-PREM
	SI-1016-2	SI-1016-2-PREM
	SI-1016-2-DC	SI-1016-2-PREM
	SI-1016-2-SSL	SI-1016-2-SSL-PREM
	SI-1016-4	SI-1016-4-PREM
	SI-1016-4-SSL	SI-1016-4-SSL-PREM
	SI-1216-4	SI-1216-4-PREM
	SI-1216-4-SSL	SI-1216-4-SSL-PREM
ADX-1-2-1K-LIC-SSL (Perpetual License)	SI-1008-1	SI-1008-1-SSL
	SI-1008-1-DC	SI-1008-1-SSL
ADX-1-2-1K-TRL-SSL (Trial License)	SI-1008-1-PREM	SI-1008-1-SSL-PREM
	SI-1016-2	SI-1016-2-SSL
	SI-1016-2-DC	SI-1016-2-SSL
	SI-1016-2-PREM	SI-1016-2-SSL-PREM
ADX-4-1K-LIC-SSL (Perpetual License)	SI-1016-4	SI-1016-4-SSL
	SI-1016-4-PREM	SI-1016-4-SSL-PREM
ADX-4-1K-TRL-SSL (Trial License)	SI-1216-4	SI-1216-4-SSL
	SI-1216-4-PREM	SI-1216-4-SSL-PREM
ADX-1016-2-LIC-4P (Perpetual License)	SI-1016-2	SI-1016-4
	SI-1016-2-DC	SI-1016-4
ADX-1016-2-TRL-4P (Trial License)	SI-1016-2-PREM	SI-1016-4-PREM
	SI-1016-2-SSL	SI-1016-4-SSL
	SI-1016-2-SSL-PREM	SI-1016-4-SSL-PREM

TABLE 5 Upgrade licenses available for Brocade ADX 1000 series application switches (Continued)

License	Eligible part number	Equivalent part number after upgrade
ADX-1016-2-LIC-4P10G (Perpetual License)	SI-1016-2	SI-1216-4
	SI-1016-2-DC	SI-1216-4
ADX-1016-2-TRL-4P10G (Trial License)	SI-1016-2-PREM	SI-1216-4-PREM
	SI-1016-2-SSL	SI-1216-4-SSL
	SI-1016-2-SSL-PREM	SI-1216-4-SSL-PREM
ADX-1016-4-LIC-10G (Perpetual License)	SI-1016-4	SI-1216-4
	SI-1016-4-PREM	SI-1216-4-PREM
ADX-1016-4-TRL-10G (Trial License)	SI-1016-4-SSL	SI-1216-4-SSL
	SI-1016-4-SSL-PREM	SI-1216-4-SSL-PREM

Brocade ADX chassis-based systems: standard configurations

The following table lists the standard configurations available for Brocade ADX chassis-based application switches by part number number.

TABLE 6 Brocade ADX chassis-based systems standard configurations

Part number	Enabled features
SI-4000	Brocade ADX 4000 chassis • Supports switch image only • Supports SSL hardware acceleration
SI-4000-DC	Brocade ADX 4000 chassis: • DC power • Supports switch image only • Supports SSL hardware acceleration
SI-4000-PREM	Brocade ADX 4000 chassis: • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports SSL hardware acceleration • Supports multitenancy for up to four tenants
SI-4000-ASM4-P12-B	Brocade ADX 4000 chassis: • one ASM4 Application Switch Module • one Management module • one 12 x 1 GF Interface Module equipped with 8 Copper SFPs • 2 AC power supplies • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports SSL hardware acceleration
SI-10000	Brocade ADX 10000 chassis • Supports switch image only • Supports SSL hardware acceleration

TABLE 6 Brocade ADX chassis-based systems standard configurations (Continued)

Part number	Enabled features
SI-10000-DC	Brocade ADX 10000 chassis • DC power • Supports switch image only • Supports SSL hardware acceleration
SI-10000-PREM	Brocade ADX 10000 chassis • Supports PREM (L3 + GSLB) license • Supports switch and router images • Supports SSL hardware acceleration • Supports multitenancy for up to four tenants

Brocade ADX chassis-based systems: upgrade licenses

The following table lists the upgrade options available by license for Brocade ADX chassis-based application switches

TABLE 7 Upgrade licenses available for Brocade ADX chassis-based application switches

License	Eligible part number	Equivalent part number after upgrade
ADX-CH-LIC-PREM (Perpetual License) or ADX-CH -TRL-PREM (Trial License)	SI-4000	SI-4000-PREM
	SI-4000-DC	SI-4000-PREM
	SI-10000	SI-10000-PREM
	SI-10000-DC	SI-10000-PREM
ADX-CH-LIC-MT-TIER1	SI-4000-PREM	Not applicable
	SI-10000-PREM	Not applicable
ADX-CH-LIC-MT-TIER2	SI-10000-PREM	Not applicable
[a]ADX-CH-LIC-ASM4-8 (Perpetual License) No trial license available for this upgrade.	ASM4	ASM8

a. Please note, the ASM4 and ASM8 licenses are tied to the module and not the chassis